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Docket No. 30004713-02 US (1509-252)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Confirmation No. 7180
Andrew THOMAS et al.	Group Art Unit: 2655
Serial No. 10/005,909	Examiner: B. Albertalli
Filed: December 7, 2001	
For: VOICE SERVICE SYSTEM AND METHOD FOR MASKING AN OPERATOR'S VOICE	

AMENDED BRIEF ON APPEAL

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Sir:

Further to the Notification of Non-Compliant Appeal Brief mailed March 31, 2006, in connection with the above-identified application, herewith is Appellants' Amended Brief on Appeal.

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Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

TABLE OF CONTENTS

I.	Real Party in Interest.....	4
II.	Related Appeals and Interferences.....	4
III.	Status of Claims	4
IV.	Status of Amendments	4
V.	Summary of Claimed Subject Matter	5
VI.	Grounds of Rejection to be Reviewed on Appeal.....	7
VII.	Argument	7
VIII.	Conclusion	16
IX.	Claims Appendix	18
X.	Evidence Appendix.....	23
XI.	Related Proceedings Appendix.....	24

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

TABLE OF AUTHORITIES**Cases**

<u>Ex parte Levy</u> , 17 U.S.P.Q.2d 1461, 1464 (B.P.A.I. 1990).....	11
<u>In re Oelrich</u> , 666 F.2d 578, 581-82, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981).....	10
<u>In re Rijckaert</u> , 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993).....	10
<u>In re Roberston</u> , 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999).....	11

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

I. Real Party in Interest

The real party in interest is the Hewlett-Packard Development Company, L.P., Houston, Texas.

II. Related Appeals and Interferences

There are no related appeals and/or interferences.

III. Status of Claims

Claims 1-25 are rejected. No claims are allowed.

Claims 24 and 25 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claims 1-5, 7-13, and 15-22 are rejected under 35 U.S.C. §102(e) as being anticipated by Polcyn (U.S. 6,614,885).

Claims 6 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Polcyn in view of Galvin (U.S. 5,874,939).

Claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Polcyn.

Claims 24 and 25 are rejected under 35 U.S.C. §103(a) as being unpatentable over Polcyn in view of Cecys (U.S. 5,930,755).

IV. Status of Amendments

All previous Amendments have been entered. No amendment was filed in response to the final Office Action.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

V. Summary of Claimed Subject Matter

The claimed subject matter deals with a voice service system 8 (page 3, line 14), of the type employed in a telephone system, wherein a caller places a telephone call to a business, and the business includes a facility for responding to the call with an automated synthesized voice source (page 1, lines 8-13). Scripts for the automated synthesized voice source are stored in store 18 and supplied to text-to-speech converter 16 and/or audio server 17, thence to caller 2 (page 3, lines 30, through page 4, line 2; page 4, lines 9-13). Usually, when a human operator takes over for the automated system, the human operator can quickly dispose of the problem. Because passing a caller back to an automatic system is considered rude, in the prior art, the human at the called facility normally completed the call (page 1, lines 13-19).

The claimed subject matter enables the operator to quit the communication before the caller hangs up by including an operator subsystem 12 (page 3, line 23), at which a human operator 25 (page 5, line 6) can verbally interact with caller 2 (page 3, line 23) by giving appropriate responses. The operator subsystem takes over and prevents scripts stored in store 18 from reaching text-to-speech converter 16 and audio server 17 in response to analyzer 35 detecting that the caller needs to talk to a person (page 5, lines 12-26). Operator subsystem 12 includes a masking arrangement for causing the verbal interaction between the operator and the caller to be done through a synthesized voice that masks from the caller that the caller is talking to a human operator (page 5, lines 5-10, page 6, lines 8-11).

The masking arrangement includes text-to-speech converter 16 (page 6, lines 8-11). During masking, the text input to text-to-speech converter 16 can be derived from three text

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

sources, viz: (1) speech recognizer 30 that responds to the voice output of operator 25, (2) from the keyboard of a workstation 26, which keyboard responds to typed input by operator 25, and (3) scripts stored on store, i.e., memory 28, as selected by operator 25 (page 6, lines 1-11). In contrast, in the prior art illustrated in FIG. 1, operator 25 talks to the caller directly and uses workstation 26 to pull up and display scripts from store 28; the operator repeats the scripts while talking to the caller (page 4, lines 15-20).

When the operator is satisfied that the questions of the caller which the operator needs to handle have been resolved, the operator transfers control of the call back to interactive voice response unit 11, by using the transfer arrangement including mode controller 36, analysis unit 35 and routing manager 10. Thereby, at all times, the caller believes that he/she has exchanged a conversation with a machine and does not obtain the impression that a human operator rudely passed him/her off to a machine.

In an alternative embodiment, all calls are initially routed to operator 25, instead of being routed to interactive voice response (IVR) unit 11. In such a case, the operator decides, on the basis of the operator's initial interaction with each caller, whether or not the caller can be transferred to a standard interactive voice response unit 11. In such a case, the transfer arrangement including remote control 36, analysis unit 35, and routing manager 10, simply transfers the call from the operator system to interactive voice response unit 11, without reversing the transfer (page 7, lines 13-26).

As a further feature, the speech recognizer passes the text messages derived by the operator to an operating console of the operator subsystem to enable the operator to check

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

and edit the passages prior to the messages being supplied to the text-to-speech converter (page 6, lines 5-7; page 7, lines 9-11).

VI. Grounds of Rejection to be Reviewed on Appeal

A. Claims 24 and 25 comply with the written description requirement of 35 U.S.C. §112, first paragraph.

B. Polcyn does not anticipate the subject matter of claims 1-5, 7-13, and 15-22.

C. Polcyn and Galvin do not render obvious the subject matter of claims 6 and 14.

D. Polcyn does not render obvious the subject matter of claim 23.

E. The combination of Polcyn and Cecys does not render obvious the subject matter of claims 24 and 25.

VII. Argument

A. Claims 24 and 25 comply with the written description requirement of 35 U.S.C. §112, first paragraph.

In rejecting claim 24 as failing to comply with the written description requirement of 35 U.S.C. §112, the Examiner alleges there is no indication in the specification that a synthesized voice that is presented to a caller is constructed from actual voice utterances of the operator. The specification has numerous occurrences of the requirement of claim 24 for the synthesized speech utterances to be the actual voice utterances of the operator. Page 2, lines 9-12 of the specification discloses a "voice service system having a masking means for causing the operator's verbal interaction with the caller to be done through a synthesized voice whereby to mask from the caller that they are now talking to a human operator." Page

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

2, lines 22-23, indicates that the operator's verbal interaction with the caller is "done through a synthesized voice to mask from the caller that they are talking to a human operator." Page 3, lines 1-3, indicates there is interaction between the caller and a human operator through a synthesized voice to mask from the caller that they are talking to a human operator.

Page 5, lines 5-10 states:

More particularly, in the Figure 2 arrangement, upon a call being transferred to an operator 25, the operator's output to the caller is provided or converted into text message form and passed to a text-to-speech converter so as to be presented to the caller in a synthesized voice. As a result, the caller is masked from the fact that they are talking to a human operator which makes it socially easier for the operator to pass handling of the call back to the IVR unit.

Page 6, lines 5-9, states text messages for output to the caller are produced:

[B]y voice input to speech recognizer 30 that produces a text output, this latter preferably being fed back to the workstation for display and editing as required by the operator.

The text messages are passed from workstation 26 over connection 31 (for example, a LAN) to the text-to-speech converter 16....

Because the speech signal from operator 25 is converted by speech recognizer 30 to text that is supplied to text-to-speech converter 16, converter 16 derives the synthesized voice in the previously referred to portions of pages 2 and 5.

Hence, the allegation in the final Office Action that the specification has no disclosure of constructing, from actual voice utterances of an operator, a synthesized voice that is presented to a caller, is clearly incorrect.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

Claim 25 requires the synthesized speech utterances to be from a recorded audio source. Page 6, lines 1, 2 and 4, indicates scripts recorded on store 28 are converted into text messages that are passed from workstation 26 over connection 31 to text-to-speech converter 16. Hence, synthesized speech utterances stored as scripts (i.e., recorded audio) in store 28 are converted into synthesized speech utterances by text-to-speech converter 16.

B. Polcyn does not anticipate the subject matter of claims 1-5, 7-13 and 15-22.

The position of the Examiner appears to be that Polcyn anticipates claims 1-5, 7-13 and 15-22 because Polcyn discloses that (1) the operator using telephone 14 commands call director 102-N to conduct a dialogue with a caller (item 8, subparagraph bridging pages 6 and 7 of the final Office Action), and (2) if a caller's utterance is not recognized by speech recognition system 30, the caller is connected to the operator manning telephone 14 (first full paragraph on page 8 of the final Office Action). The Examiner incorrectly maintains that Polcyn inherently includes the requirements of (1) independent claims 1, 8, 9, and 15 for verbal interaction between an operator and a call through a synthesized voice to mask from the caller that the caller is talking to a human, and (2) independent claim 22 that requires synthesized speech utterances of a human operator to be transmitted to a caller so the synthesized speech utterances appear to the caller to be from the same source as the first predetermined synthesized speech message. Obviously, Polcyn has no disclosure of the foregoing features of the independent claims; otherwise, the Examiner would not be relying on inherency.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

Polcyn had ample opportunity to mention the foregoing features of the independent claims. Column 5, lines 19 and 20, states: "The operator can initiate a direct interactive connection with the caller as shown in step 24." Column 5, lines 39-44, states:

A fourth possible treatment of an incoming call allows the live operator to either control the actions of remote call director 102-N or have the call director route the live telephone call to that operator's position. In this case the operator will directly interact with the caller to determine how the call should be directed (step 24). It will be understood that in the automated mode, before a live interaction is initiated, the operator does not have to communicate directly with the caller. Instead, the recorded utterance is provided to the operator over connection 14 without any indication to the caller that an operator is assisting in placing the call.

The last sentence of the abstract states: "Finally, a caller can be connected directly to the operator, if the operator is not able to determine routing information from the provided data alone." If the Polcyn system performed the foregoing operations of the independent claims, certainly he would have mentioned them in some manner in at least one of the foregoing places.

The Examiner also has not met the burden of establishing a *prima facie* case of inherency. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981). To establish inherency, extrinsic evidence must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference and that it would be so recognized by persons of ordinary skill in

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

the art. Inherency may not be established by possibilities or probabilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Roberston*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999). In relying upon a theory of inherency, the Examiner must provide a basis in fact or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (B.P.A.I. 1990). The Examiner has not provided rationale or evidence to show that the quoted portions of Polcyn inherently provide the foregoing requirements of the independent claims, but in each case has jumped to the conclusion that claimed masking and synthesizing occur.

To reject claim 1, item 8, in the paragraph bridging pages 5 and 6 of the final Office Action, incorrectly alleges that Polcyn inherently discloses, in column 4, line 52-55, and column 6, lines 24-31, a masking arrangement for causing a verbal interaction between an operator and a caller to be done through a synthesized voice to mask from the caller that s/he is talking to a human operator. Column 4, lines 52-55 states:

These messages could instruct call director 102-N to perform additional functions, such as re-prompting the caller to speak or initiating some additional or predetermined dialogue with the caller.

Column 4, lines 48-52, and column 7, lines 7-17, appear to indicate the words "these messages" in the foregoing quotation from Polcyn refer to messages that are passed by the operator to call director 102-N via voice recognition system 30 to call director 102-N if the operator or voice recognition system could not understand the caller, for example, because the words were garbled, unintelligible or in a foreign language. Column 4, lines 55-59,

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

indicates that the operator can direct call director 102-N to route the call to the operator's telephone, in which case control of the call is transferred to the live operator. Hence, there is nothing in the relied-upon portion of column 4 to support the Examiner's position with regard to masking from the caller that the caller is talking to a human operator through the use of a synthesized voice.

Column 6, lines 19-31, of Polcyn, which the Examiner relies on, states:

Agent operator management application 33 is an application that controls and provides an interface to the agent's terminal 15. This allows the operators to interact with system 30 by entering the department name or the extension that the caller is to be connected to. This information is returned via data interface 202-N to remote call director 102-N. The agent can also have the option of sending commands via data interface 34 and data connection 202-N to remote call director 102-N to control various remote call director 102-N functions, such as prompting the user for additional information or invoking other applications in the remote location IVR.

The foregoing mentions nothing about causing a verbal interaction between an operator and a caller through a synthesized voice to mask from the caller that the caller is talking to a human operator.

Based on the foregoing, the Examiner has improperly jumped to conclusions about Polcyn disclosing the synthesizing and masking requirements of claim 1. Consequently, the rejection of claim 1 as being anticipated by Polcyn is wrong.

Claim 5 requires a text response means that generates text messages that are passed to a text-to-speech converter for output to the caller to include a speech recognizer for receiving voice input from the operator and for generating text messages. To meet this feature, in the

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

last paragraph on page 7, the final Office Action relies on the disclosure in Polcyn at column 6, lines 31-34, of an operator inputting data through agent telephone 14. The data supplied to telephone 14 is analyzed by voice recognition system 30. However, there is no indication that the data analyzed by voice recognition system 30 from telephone 14 is supplied to the caller to mask from the caller that the caller is talking to a human operator.

Column 6, lines 33-40, indicates voice recognition system 30 allows the operator to enunciate the words very clearly so that the voice recognition system has a clearer, more accurate utterance to use in its search and to match its vocabulary. Column 7, lines 6-19, indicates the voice signal from the agent, i.e., telephone 14, is supplied to voice recognition system 30 to enable the voice recognition system to recognize the caller's desired product or department. The agent, after listening to the words of the caller, determines that the voice recognition system has not understood what the caller said. As a result, the agent re-enunciates the caller's desired product or department more clearly than the caller enunciated the desired product or department. As a result, the voice recognition system is able to react to the words of the caller that the voice recognition system could not understand and command call director 102-N to conduct a dialogue with the caller (column 3, line 53). Hence, Polcyn has no disclosure of the requirement of claim 5 for receiving voice input from the operator and generating synthesized text messages that are supplied to the caller.

The allegation in the paragraph bridging pages 8 and 9 of the final Office Action that Polcyn inherently provides the claim 8 requirement for a voice service system having masking means for causing an operator in verbal interaction with a caller to be done through

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

a synthesized voice, to mask from the caller that they are now talking to a human operator, is incorrect. To reject this claim, the Examiner relies on the disclosure in Polcyn at column 4, lines 52-55 and column 6, lines 24-31. However, as previously discussed, there is no disclosure in this portion of Polcyn of masking from the caller that the caller is talking to a human operator. As discussed, *supra*, in connection with the rejection of claim 5, the person using telephone 14 interacts with speech recognition unit 30 to enable the speech recognition unit to more clearly understand what the caller said.

Claim 9 is not anticipated by Polcyn because it requires an operator's verbal interaction with a caller to be done through a synthesized voice, to mask from the caller that the caller is talking to a human operator. As previously discussed, Polcyn does not synthesize and mask the operator's verbal interaction with a caller.

The allegation in the first full paragraph bridging pages 10 and 11 of the final Office Action that Polcyn discloses the requirement of claim 15 for a verbal interaction between a caller and a human operator through a synthesized voice to mask from the caller that the caller is talking to a human operator is wrong. As previously discussed, Polcyn does not mask the voice of the operator from the caller.

The statement in the paragraph bridging pages 12 and 13 of the final Office Action that Polcyn discloses the requirement of claim 22 for transmitting synthesized speech utterances of a human operator to a caller so the synthesized speech utterances appear to the caller to be from the same source as a predetermined synthesized speech message that is transmitted to the caller, is incorrect. As previously discussed, there are no synthesized

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

speech utterances of a person using telephone 14 of Polcyn that are transmitted to the caller. Instead, any calls from the person using telephone 14 that are coupled to speech analyzer 30 are used only at the speech analyzer and are not coupled to a caller.

In analyzing claim 22, the second paragraph on page 13 of the final Office Action states the synthesized speech utterances of the operator are transmitted to the caller so that the synthesized speech utterances appear to the caller to be from the same source as the first occurring synthesized speech messages. However, as discussed, *supra*, in Polcyn, the message that the person using telephone 14 and which is coupled to speech analyzer 30 is not transmitted in a synthesized form to the caller. Instead, voice recognition system 30 simply responds to the re-enunciation of the caller's desired product or department by the person using telephone 14.

C. Polcyn and Galvin does not render obvious the subject matter of claims 6 and 14.

The rejection of claims 6 and 14 as being obvious as a result of Polcyn in view of Galvin is incorrect. Galvin does not cure the above-noted deficiencies of claims 1 and 9, upon which claims 6 and 14 respectively depend. In addition, one of ordinary skill in the art would not have employed the Galvin editing counsel in the Polcyn system, because the person using telephone 14 to re-enunciate the caller's desired product or department would have no need for such editing.

D. Polcyn does not render obvious the subject matter of claim 23.

The rejection of claim 23 as being obvious as a result of Polcyn is wrong. Claim 23 requires the caller to respond to the synthesized speech utterances by transmitting a further message to the called station. The called station responds to the further message by transmitting a second predetermined synthesized message to the caller so the second predetermined

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

synthesized message appears to the caller to be from the same source as the first predetermined synthesized message.

The Examiner states that it is well known to include a courtesy message before transferring a call. However, it is not obvious from Polcyn to transmit to the caller a first synthesized message that comes from a machine, a second synthesized message that comes from an operator, and a third synthesized message that comes from a machine, to give the impression to the caller that all three synthesized messages came from the machine.

E. The combination of Polcyn and Cecys does not render obvious the subject matter of claims 24 and 25.

The rejection of claims 24 and 25 as being obvious as a result of Polcyn in view of Cecys is incorrect because Cecys obviously does not cure the deficiencies in the rejection of claim 22, upon which claims 24 and 25 depend.

VIII. Conclusion

Appellants have clearly shown that the Examiner has misinterpreted Polcyn by stating (1) there are speech utterances from a person using telephone 14 that are synthesized and converted to speech utterances that appear to a caller to be from the same source as a predetermined synthesized speech message, and (2) there is a synthesized voice to mask to the caller that the caller is talking to a human operator. The Examiner's reliance on inherency is contrary to the requirements of the decisions of the courts and this Board. Polcyn had ample opportunity to mention masking and never did. Appellants have shown that coupling of a voice signal from the operator's telephone 14 to speech analyzer 30 has nothing to do with transmitting to a caller a synthesized voice signal that masks the voice of the operator.

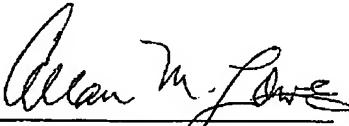
Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

In view of the foregoing, the ruling of the Examiner that claims 1-25 are not patentable cannot be sustained, and reversal of the final rejection thereof is in order.

Respectfully submitted,
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Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

Claims Appendix

1. A voice service system comprising:
an interactive voice response unit for interactively dealing with a call from a human caller by using predetermined responses,
an operator subsystem by which a human operator can verbally interact with the caller by giving appropriate responses regardless of the predetermined responses available to the voice response unit, the operator subsystem including a masking arrangement for causing the verbal interaction between the operator and the caller to be done through a synthesized voice whereby to mask from the caller that the caller is talking to a human operator; and
a transfer arrangement for transferring handling of the call from the operator subsystem to the voice response unit.
2. A voice service system according to claim 1, wherein the masking arrangement comprises text response means for generating text messages from the operator, and means for passing said messages to a text-to-speech converter for output to the caller.
3. A voice service system according to claim 2, wherein the text-to-speech converter is part of the voice response unit and is arranged for providing the same synthesized voice to the caller whether the call is being handled by the operator subsystem or by the voice response unit.
4. A voice service system according to claim 2, wherein the text response means comprises a keyboard for operator entry of text messages.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

5. A voice service system according to claim 2, wherein the text response means comprises a speech recognizer for receiving voice input from the operator and generating text messages.

6. A voice service system according to claim 5, wherein the speech recognizer is arranged for passing the text messages output thereby to an editing console of the operator subsystem to enable the operator to check and edit the messages prior to output to the text-to-speech converter.

7. A voice service system according to claim 1, wherein the transfer arrangement includes an analysis subsystem for analysing caller input when the voice response unit is handling the call whereby to determine whether the caller requires operator assistance, the analysis subsystem being operative, upon determining that the caller requires operator assistance, to cause the transfer arrangement to transfer the call to the operator subsystem.

8. A voice service system comprising an interactive voice response unit for interactively dealing with a call from a human caller by using predetermined responses, an operator subsystem by which a human operator can verbally interact with the caller by giving appropriate responses regardless of the predetermined responses available to the voice response unit, and transfer means for transferring handling of the call between the voice response unit and the operator subsystem, the voice service system having masking means for causing the operator's verbal interaction with the caller to be done through a synthesized voice whereby to mask from the caller that the caller is now talking to a human operator, the

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

transfer means being usable by the operator to have handling of a call transferred to the voice response unit.

9. A method of providing voice services in respect of a call placed by a human caller, the method comprising :

- (a) carrying out an verbal interaction between the caller and a human operator;
- (b) at the instigation of the operator, transferring the call to an interactive voice response unit; and
- (c) continuing verbal interaction with the caller through the voice response unit by using predetermined responses, the operator's verbal interaction with the caller in (a) by giving appropriate responses regardless of the predetermined responses available to the voice response unit, being done through a synthesized voice whereby to mask from the caller that the caller is talking to a human operator.

10. A method according to claim 9, wherein the operator's verbal interaction with the caller includes generating a text message from operator input and passing this message through a text-to-speech converter to output the operator input in said synthesized voice.

11. A method according to claim 10, wherein the text-to-speech converter is part of the voice response unit and provides the same synthesized voice to the caller whether the call is interaction with the operator or the voice response unit.

12. A method according to claim 10, wherein the operator generates the text message using a keyboard.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

13. A method according to claim 10, wherein the operator generates the text message through a speech recognizer.

14. A method according to claim 13, wherein the text message output by the speech recognizer is checked and, where required, edited by the operator at an editing console prior to output to the text-to-speech converter.

15. A method of providing voice services in respect of a call placed by a human caller, the method comprising :

- (a) enabling voice interaction between the caller and a voice response unit;
- (b) analyzing the caller's interaction with the voice response unit to determine whether the caller requires operator assistance;
- (c) in response to the analysis indicating operator assistance is required, transferring the call to a human operator; and
- (d) carrying out a verbal interaction between the caller and a human operator, said verbal interaction being unrestricted by the range of responses available for output by the voice response unit and being done through a synthesized voice whereby to mask from the caller that the caller is talking to a human operator.

16. A method according to claim 15, wherein the verbal interaction includes generating a text message from operator input and passing this message through a text-to-speech converter to output the operator input in said synthesized voice.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

17. A method according to claim 16, wherein the text-to-speech converter is part of the voice response unit and provides the same synthesized voice to the caller whether the call is interaction with the operator or the voice response unit.

18. A method according to claim 16, wherein the operator generates the text message using a keyboard.

19. A method according to claim 16, wherein the operator generates the text message through a speech recognizer.

20. The system of claim 1, wherein the operator subsystem is arranged to enable the operator to also verbally interact with the caller by causing the voice response unit to output an operator-selected one of said predetermined responses.

21. The method of claim 9, wherein (a) includes the operator interacting with the caller by causing the voice response unit to output an operator-selected one of said predetermined responses.

22. A telephony method comprising:

a caller calling a called station;

the called station responding to the caller by transmitting a first predetermined synthesized speech message to the caller;

the caller responding to the first predetermined synthesized speech message in a manner causing a human operator associated with the called station to respond with speech utterances;

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

synthesizing the speech utterances; and

transmitting the synthesized speech utterances to the caller so the synthesized speech utterances appear to the caller to be from the same source as the first predetermined synthesized speech message.

23. The method of claim 22, further including:

the caller responding to the synthesized speech utterances by transmitting a further message to the called station; and

the called station responding to the further message by transmitting a second predetermined synthesized message to the caller so the second predetermined synthesized message appears to the caller to be from the same source as the first predetermined synthesized message and the synthesized speech utterances.

24. The method of claim 22, wherein the synthesized speech utterances are from an actual voice utterance of the operator.

25. The method of claim 22, wherein the synthesized speech utterances are from a recorded audio source.

IX. Evidence Appendix

None.

Serial No. 10/005,909

Docket No. 30004713-02 US (1509-252)

X. Related Proceedings Appendix

None.

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